

## AMENDMENT AND RESPONSE

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Serial No.: 10/008,658

Filing Date: 11/9/2001

Attorney Docket No. 100.344US01

Title: CONCURRENT TRANSMISSION OF TRAFFIC FROM MULTIPLE  
COMMUNICATION INTERFACES

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Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of claims:

1- 9. (Canceled)

10. (Currently Amended) ~~The termination unit of claim 8,~~ A termination unit for use in a digital subscriber line system, comprising:
- a first communication interface adapted for receiving first traffic having a first number of timeslots, each timeslot corresponding to an incremental bit rate, wherein a number ( $N_1$ ) of timeslots used for payload is less than or equal to the first number of timeslots;
- a second communication interface adapted for receiving second traffic, wherein the second traffic has a bit rate equal to some multiple ( $N_2$ ) of the incremental bit rate;
- and
- a third communication interface for coupling to a digital subscriber line and for providing a combined traffic having a second number of timeslots, each timeslot corresponding to the incremental bit rate, wherein the second number of timeslots is greater than or equal to  $N_1 + N_2$ ;
- wherein the termination unit is adapted to map the timeslots of the first traffic to a first portion of the timeslots of the combined traffic;
- wherein the termination unit is adapted to map the second traffic to a second portion of the timeslots of the combined traffic; and
- wherein the first portion of the timeslots of the combined traffic begins at a first timeslot of the combined traffic.

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11. (Currently Amended) ~~The termination unit of claim 8;~~ A termination unit for use in a digital subscriber line system, comprising:  
a first communication interface adapted for receiving first traffic having a first number of timeslots, each timeslot corresponding to an incremental bit rate, wherein a number ( $N_1$ ) of timeslots used for payload is less than or equal to the first number of timeslots;  
a second communication interface adapted for receiving second traffic, wherein the second traffic has a bit rate equal to some multiple ( $N_2$ ) of the incremental bit rate;  
and  
a third communication interface for coupling to a digital subscriber line and for providing a combined traffic having a second number of timeslots, each timeslot corresponding to the incremental bit rate, wherein the second number of timeslots is greater than or equal to  $N_1 + N_2$ ;  
wherein the termination unit is adapted to map the timeslots of the first traffic to a first portion of the timeslots of the combined traffic;  
wherein the termination unit is adapted to map the second traffic to a second portion of the timeslots of the combined traffic; and  
wherein when  $N_1$  is equal to the first number of timeslots, the payload of the first traffic begins at the first timeslot of the combined traffic when  $N_1$  is equal to the first number of timeslots.
12. (Original) The termination unit of claim 11, wherein the second portion of the timeslots of the combined traffic begins at an  $N_1$ th + 1 timeslot when  $N_1$  is equal to the first number of timeslots.

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13. (Original) The termination unit of claim 10, wherein the payload of the first traffic begins at a second timeslot of the combined traffic when  $N_1$  is less than the first number of timeslots.
14. (Original) The termination unit of claim 13, wherein the first timeslot of the combined traffic corresponds to framing information.
15. (Currently Amended) The termination unit of claim 8; A termination unit for use in a digital subscriber line system, comprising:  
a first communication interface adapted for receiving first traffic having a first number of timeslots, each timeslot corresponding to an incremental bit rate, wherein a number ( $N_1$ ) of timeslots used for payload is less than or equal to the first number of timeslots;  
a second communication interface adapted for receiving second traffic, wherein the second traffic has a bit rate equal to some multiple ( $N_2$ ) of the incremental bit rate;  
and  
a third communication interface for coupling to a digital subscriber line and for providing a combined traffic having a second number of timeslots, each timeslot corresponding to the incremental bit rate, wherein the second number of timeslots is greater than or equal to  $N_1 + N_2$ ;  
wherein the termination unit is adapted to map the timeslots of the first traffic to a first portion of the timeslots of the combined traffic;  
wherein the termination unit is adapted to map the second traffic to a second portion of the timeslots of the combined traffic; and  
wherein the first portion of the timeslots is contiguous.

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16. (Currently Amended) ~~The termination unit of claim 8;~~ A termination unit for use in a digital subscriber line system, comprising:  
a first communication interface adapted for receiving first traffic having a first number of timeslots, each timeslot corresponding to an incremental bit rate, wherein a number ( $N_1$ ) of timeslots used for payload is less than or equal to the first number of timeslots;  
a second communication interface adapted for receiving second traffic, wherein the second traffic has a bit rate equal to some multiple ( $N_2$ ) of the incremental bit rate;  
and  
a third communication interface for coupling to a digital subscriber line and for providing a combined traffic having a second number of timeslots, each timeslot corresponding to the incremental bit rate, wherein the second number of timeslots is greater than or equal to  $N_1 + N_2$ ;  
wherein the termination unit is adapted to map the timeslots of the first traffic to a first portion of the timeslots of the combined traffic;  
wherein the termination unit is adapted to map the second traffic to a second portion of the timeslots of the combined traffic; and  
wherein  $N_1$  is less than the first number of timeslots and wherein a timeslot of the first traffic is mapped to its corresponding timeslot of the combined traffic for at least  $N_1 + 1$  timeslots of the first traffic.
17. (Original) The termination unit of claim 16, wherein one timeslot of the first traffic is mapped to a timeslot of the combined traffic other than its corresponding timeslot.
18. (Original) The termination unit of claim 17, the one timeslot corresponds to signaling information.

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19. (Original) The termination unit of claim 16, wherein a timeslot of the first traffic is mapped to its corresponding timeslot of the combined traffic for  $N_1 + 2$  timeslots of the first traffic.
20. (Currently Amended) ~~The termination unit of claim 8,~~ A termination unit for use in a digital subscriber line system, comprising:  
a first communication interface adapted for receiving first traffic having a first number of timeslots, each timeslot corresponding to an incremental bit rate, wherein a number ( $N_1$ ) of timeslots used for payload is less than or equal to the first number of timeslots;  
a second communication interface adapted for receiving second traffic, wherein the second traffic has a bit rate equal to some multiple ( $N_2$ ) of the incremental bit rate;  
and  
a third communication interface for coupling to a digital subscriber line and for providing a combined traffic having a second number of timeslots, each timeslot corresponding to the incremental bit rate, wherein the second number of timeslots is greater than or equal to  $N_1 + N_2$ ;  
wherein the termination unit is adapted to map the timeslots of the first traffic to a first portion of the timeslots of the combined traffic;  
wherein the termination unit is adapted to map the second traffic to a second portion of the timeslots of the combined traffic; and  
wherein  $N_1$  is equal to the first number of timeslots and wherein a timeslot of the first traffic is mapped to its corresponding timeslot of the combined traffic for each timeslot of the first traffic.
21. (Currently Amended) ~~The termination unit of claim 8,~~ A termination unit for use in a digital subscriber line system, comprising:

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a first communication interface adapted for receiving first traffic having a first number of timeslots, each timeslot corresponding to an incremental bit rate, wherein a number ( $N_1$ ) of timeslots used for payload is less than or equal to the first number of timeslots;

a second communication interface adapted for receiving second traffic, wherein the second traffic has a bit rate equal to some multiple ( $N_2$ ) of the incremental bit rate;  
and

a third communication interface for coupling to a digital subscriber line and for providing a combined traffic having a second number of timeslots, each timeslot corresponding to the incremental bit rate, wherein the second number of timeslots is greater than or equal to  $N_1 + N_2$ ;

wherein the termination unit is adapted to map the timeslots of the first traffic to a first portion of the timeslots of the combined traffic;

wherein the termination unit is adapted to map the second traffic to a second portion of the timeslots of the combined traffic, and

wherein the first traffic is E1 traffic having 32 timeslots (0-31), wherein timeslot 0 of the first traffic corresponds to framing information and wherein timeslot 16 of the first traffic corresponds to signaling information.

22. (Original) The termination unit of claim 21, wherein the combined traffic is SHDSL traffic having 36 timeslots (0-35), wherein timeslot 0 of the combined traffic corresponds to timeslot 0 of the first traffic, and wherein timeslot 16 of the combined traffic corresponds to timeslot 16 of the first traffic when  $N_1$  is less than or equal to 30 and greater than or equal to 15.

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23. (Original) The termination unit of claim 22, wherein timeslot 16 of the combined traffic further corresponds to timeslot 16 of the first traffic when  $N_1$  is less than 15 if  $N_1 + N_2$  is greater than or equal to 15.
24. (Original) The termination unit of claim 22, wherein timeslot 16 of the first traffic corresponds to timeslot  $N_1 + N_2 + 1$  of the combined traffic when  $N_1$  is greater than or equal to 1 and  $N_1 + N_2$  is less than or equal to 15.
25. (Canceled)
26. (Currently Amended) The termination unit of claim ~~28~~<sup>25</sup>, further comprising:  
wherein the first communication interface is a G.703/704 interface;  
wherein the second communication interface is an Nx64Kbps serial dataport interface;  
wherein the incremental bit rate is 64Kbps;  
wherein the first number of timeslots equals 32 (timeslots 0-31); and  
wherein the second number of timeslots is less than or equal to 36 (timeslots 0-35).
27. (Original) The termination unit of claim 26, wherein the Nx64Kbps serial dataport interface is selected from the group consisting of a V.35 interface, a V.36 interface, an X.21 interface and an RS-530 interface.
28. (Currently Amended) ~~The termination unit of claim 26, further comprising:~~ A termination unit for use in a digital subscriber line system, comprising:  
a first communication interface adapted for receiving pulse code modulated voice traffic  
and/or packetized data traffic having a first number of timeslots, each timeslot  
corresponding to an incremental bit rate, wherein a number ( $N_1$ ) of timeslots used  
for payload is less than or equal to the first number of timeslots;

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a second communication interface adapted for receiving serial data traffic, wherein the serial data traffic has a bit rate equal to some multiple ( $N_2$ ) of the incremental bit rate; and

a third communication interface for coupling to a single-pair high bit-rate digital subscriber line and for providing a combined traffic having a second number of timeslots, each timeslot corresponding to the incremental bit rate, wherein the second number of timeslots is greater than or equal to  $N_1 + N_2$ ;

wherein the termination unit is adapted to map the timeslots of the pulse code modulated voice traffic and/or packetized data traffic to a first portion of the timeslots of the combined traffic;

wherein the termination unit is adapted to map the serial data traffic to a second portion of the timeslots of the combined traffic; and

wherein the termination unit is adapted to map timeslot 0 of the pulse code modulated voice traffic and/or packetized data traffic to timeslot 0 of the combined traffic;

wherein the termination unit is adapted to map timeslot 16 of the pulse code modulated voice traffic and/or packetized data traffic to timeslot 16 of the combined traffic if  $N_1 + N_2$  is greater than or equal to 15;

wherein the termination unit is adapted to map timeslot 16 of the pulse code modulated voice traffic and/or packetized data traffic to timeslot ( $N_1 + N_2 + 1$ ) of the combined traffic if  $N_1 + N_2$  is less than 15;

wherein the termination unit is adapted to map remaining timeslots of the pulse code modulated voice traffic and/or packetized data traffic to corresponding timeslots of the combined traffic;

wherein the termination unit is adapted to map the serial data traffic to timeslots of the combined traffic beginning at timeslot ( $N_1 + 1$ ) when  $N_1$  is less than 15;



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wherein the termination unit is adapted to map the serial data traffic to timeslots of the combined traffic beginning at timeslot ( $N_1 + 2$ ) when  $N_1$  is greater than or equal to 15; and

wherein mapping of the serial data traffic skips timeslot 16 of the combined traffic when  $N_1$  is less than 15 and  $N_1 + N_2$  is greater than or equal to 15.

29- 37. (Canceled)

38. (Currently Amended) ~~The method of claim 36,~~ A method of communicating across a digital subscriber line system, comprising:  
receiving first traffic having a first number of timeslots, each timeslot corresponding to an incremental bit rate, wherein a number ( $N_1$ ) of timeslots used for payload is less than or equal to the first number of timeslots;  
receiving second traffic, wherein the second traffic has a bit rate equal to some multiple ( $N_2$ ) of the incremental bit rate;  
combining the first traffic and the second traffic to generate a combined traffic having a second number of timeslots, each timeslot corresponding to the incremental bit rate, wherein the second number of timeslots is greater than or equal to  $N_1 + N_2$ ;  
mapping the timeslots of the first traffic to a first portion of the timeslots of the combined traffic; and  
mapping the second traffic to a second portion of the timeslots of the combined traffic;  
wherein the first portion of the timeslots of the combined traffic begins at a first timeslot of the combined traffic.

39. (Currently Amended) ~~The method of claim 36,~~ A method of communicating across a digital subscriber line system, comprising:

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receiving first traffic having a first number of timeslots, each timeslot corresponding to an incremental bit rate, wherein a number ( $N_1$ ) of timeslots used for payload is less than or equal to the first number of timeslots;  
receiving second traffic, wherein the second traffic has a bit rate equal to some multiple ( $N_2$ ) of the incremental bit rate;  
combining the first traffic and the second traffic to generate a combined traffic having a second number of timeslots, each timeslot corresponding to the incremental bit rate, wherein the second number of timeslots is greater than or equal to  $N_1 + N_2$ ;  
mapping the timeslots of the first traffic to a first portion of the timeslots of the combined traffic; and  
mapping the second traffic to a second portion of the timeslots of the combined traffic;  
wherein when  $N_1$  is equal to the first number of timeslots, the payload of the first traffic begins at the first timeslot of the combined traffic when  $N_1$  is equal to the first number of timeslots.

40. (Original) The method of claim 39, wherein the second portion of the timeslots of the combined traffic begins at an  $N_1$ th + 1 timeslot when  $N_1$  is equal to the first number of timeslots.
41. (Original) The method of claim 38, wherein the payload of the first traffic begins at a second timeslot of the combined traffic when  $N_1$  is less than the first number of timeslots.
42. (Original) The method of claim 41, wherein the first timeslot of the combined traffic corresponds to framing information.
43. (Currently Amended) The method of claim 36, A method of communicating across a digital subscriber line system, comprising:

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receiving first traffic having a first number of timeslots, each timeslot corresponding to an incremental bit rate, wherein a number ( $N_1$ ) of timeslots used for payload is less than or equal to the first number of timeslots;

receiving second traffic, wherein the second traffic has a bit rate equal to some multiple ( $N_2$ ) of the incremental bit rate;

combining the first traffic and the second traffic to generate a combined traffic having a second number of timeslots, each timeslot corresponding to the incremental bit rate, wherein the second number of timeslots is greater than or equal to  $N_1 + N_2$ ;

mapping the timeslots of the first traffic to a first portion of the timeslots of the combined traffic; and

mapping the second traffic to a second portion of the timeslots of the combined traffic;  
wherein the first portion of the timeslots is contiguous.

44. (Currently Amended) ~~The method of claim 36,~~ A method of communicating across a digital subscriber line system, comprising:

receiving first traffic having a first number of timeslots, each timeslot corresponding to an incremental bit rate, wherein a number ( $N_1$ ) of timeslots used for payload is less than or equal to the first number of timeslots;

receiving second traffic, wherein the second traffic has a bit rate equal to some multiple ( $N_2$ ) of the incremental bit rate;

combining the first traffic and the second traffic to generate a combined traffic having a second number of timeslots, each timeslot corresponding to the incremental bit rate, wherein the second number of timeslots is greater than or equal to  $N_1 + N_2$ ;

mapping the timeslots of the first traffic to a first portion of the timeslots of the combined traffic;

mapping the second traffic to a second portion of the timeslots of the combined traffic;

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wherein  $N_1$  is less than the first number of timeslots and wherein a timeslot of the first traffic is mapped to its corresponding timeslot of the combined traffic for at least  $N_1 + 1$  timeslots of the first traffic.

45. (Original) The method of claim 44, wherein one timeslot of the first traffic is mapped to a timeslot of the combined traffic other than its corresponding timeslot.
46. (Original) The method of claim 45, wherein the one timeslot corresponds to signaling information.
47. (Original) The method of claim 44, wherein a timeslot of the first traffic is mapped to its corresponding timeslot of the combined traffic for  $N_1 + 2$  timeslots of the first traffic.
48. (Currently Amended) ~~The method of claim 36;~~ A method of communicating across a digital subscriber line system, comprising:  
receiving first traffic having a first number of timeslots, each timeslot corresponding to an incremental bit rate, wherein a number ( $N_1$ ) of timeslots used for payload is less than or equal to the first number of timeslots;  
receiving second traffic, wherein the second traffic has a bit rate equal to some multiple ( $N_2$ ) of the incremental bit rate;  
combining the first traffic and the second traffic to generate a combined traffic having a second number of timeslots, each timeslot corresponding to the incremental bit rate, wherein the second number of timeslots is greater than or equal to  $N_1 + N_2$ ;  
mapping the timeslots of the first traffic to a first portion of the timeslots of the combined traffic; and  
mapping the second traffic to a second portion of the timeslots of the combined traffic;

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wherein  $N_1$  is equal to the first number of timeslots and wherein a timeslot of the first traffic is mapped to its corresponding timeslot of the combined traffic for each timeslot of the first traffic.

49. (Currently Amended) ~~The method of claim 36;~~ A method of communicating across a digital subscriber line system, comprising:  
receiving first traffic having a first number of timeslots, each timeslot corresponding to an incremental bit rate, wherein a number ( $N_1$ ) of timeslots used for payload is less than or equal to the first number of timeslots;  
receiving second traffic, wherein the second traffic has a bit rate equal to some multiple ( $N_2$ ) of the incremental bit rate;  
combining the first traffic and the second traffic to generate a combined traffic having a second number of timeslots, each timeslot corresponding to the incremental bit rate, wherein the second number of timeslots is greater than or equal to  $N_1 + N_2$ ;  
mapping the timeslots of the first traffic to a first portion of the timeslots of the combined traffic; and  
mapping the second traffic to a second portion of the timeslots of the combined traffic;  
wherein the first traffic is E1 traffic having 32 timeslots (0-31), wherein timeslot 0 of the first traffic corresponds to framing information and wherein timeslot 16 of the first traffic corresponds to signaling information.
50. (Original) The method of claim 49, wherein the combined traffic is SHDSL traffic having 36 timeslots (0-35), wherein timeslot 0 of the combined traffic corresponds to timeslot 0 of the first traffic, and wherein timeslot 16 of the combined traffic corresponds to timeslot 16 of the first traffic when  $N_1$  is less than or equal to 30 and greater than or equal to 15.

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51. (Original) The method of claim 50, wherein timeslot 16 of the combined traffic further corresponds to timeslot 16 of the first traffic when  $N_1$  is less than 15 if  $N_1 + N_2$  is greater than or equal to 15.
52. (Original) The method of claim 50, wherein timeslot 16 of the first traffic corresponds to timeslot  $N_1 + N_2 + 1$  of the combined traffic when  $N_1$  is greater than or equal to 1 and  $N_1 + N_2$  is less than or equal to 15.